

WHAT IS CLAIMED IS:

1. A method for adjusting an alignment microscope (1) comprising the steps:
 - (a) providing an alignment mask (5) in which one side (51) comprises at least one alignment mark (53) and the other side (52) is reflective in at least the area (54) opposite to the alignment mark (53);
 - (b) focusing the microscope (1) to the alignment mark (53);
 - (c) refocusing the microscope (1) to the mirror image (53') of the alignment mark (53) being generated by the reflective side (52);
 - (d) comparing the position of the alignment mark (53) and that of the generated mirror image (53') of the alignment mark (53);
 - (e) adjusting the microscope (1) so that the alignment mark (53) and the mirror image (53') thereof superimpose; and
 - (f) repeating steps (b) to (e) until the comparison in step (d) reveals that the alignment mark (53) and the mirror image (53') of the alignment mark (53) are aligned with respect to each other.
2. The method according to claim 1, wherein at least one alignment cross serving as the alignment mark is located on the alignment mask (5).
3. The method according to claim 1, wherein, after step (b) has been carried out once, the microscope is adjusted such that the alignment mark (53) is located in the center of the image.
4. The method according to claim 1, wherein after focusing in step (b) the image and/or the position values of the alignment mark is/are stored.
5. The method according to claim 4, wherein in step (f) only steps (d) and (e) are repeated and in step (d) the position of the mirror image (53') of the alignment mark (53) is compared with the position of the alignment mark (53) in the stored image.

6. An alignment mask (5) for adjusting an alignment microscope (1), wherein one side (51) of the alignment mask (5) comprises at least one alignment mark (53) and the other side (52) is reflective at least in the area (54) opposite to the alignment mark (53).
7. The alignment mask (5) according to claim 6 comprising at least one alignment cross serving as the alignment mark.
8. The alignment mask (5) according to claim 6, wherein the alignment mask (5) comprises a means for shifting the focus area of the alignment microscope (1) necessary for focusing the alignment mark (53) and the mirror image (53') of the alignment mark (53).
9. The alignment mask (5) according to claim 6, comprising a carrier plate (55) having a reflective side (52) to which portions (57) are attached which each comprise at least one alignment mark on the surface facing away from the carrier plate (55).
10. The alignment mask (5) according to claim 6, comprising a carrier plate (55) to which an intermediate plate (56) is attached which has a reflective side (52) facing away from the carrier plate (55), wherein portions (57) which each comprise at least one alignment mark on the side facing away from the intermediate plate (56) are cemented to the reflective side (52).
11. A device for adjusting the alignment microscope (1) thereby using an alignment mask (5) according to claim 6.
12. A device according to claim 11, wherein a transparent plane-parallel correction plate (61) is additionally provided between the alignment mask (5) and the alignment microscope (1) for shifting the focus area.
13. A method for exposing a substrate through an exposure mask comprising the steps:
 - adjusting an alignment microscope (1) according to claim 1;
 - adjusting the exposure mask and the substrate with respect to each other by means of the adjusted alignment microscope; and
 - exposing the substrate through the exposure mask.

14. The method according to claim 13, wherein the focus area of the alignment microscope (1) is shifted between the steps of adjusting the alignment microscope (1) and adjusting the exposure mask and the substrate with respect to each other.

15. The method according to claim 13, wherein it is possible to avoid that the focus area of the alignment microscope (1) is shifted between the steps of adjusting the alignment microscope (1) and adjusting the exposure mask and the substrate with respect to each other by the use of a transparent plane-parallel correction plate (61) during the adjustment of the alignment microscope (1).